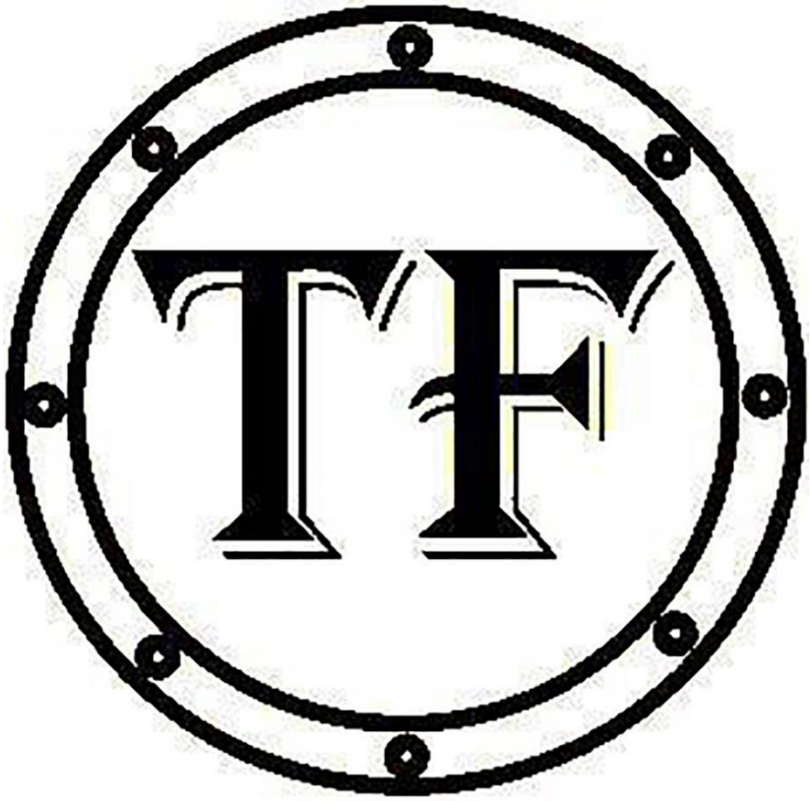
How to Flange Out a Stainless Steel Pipe: 5 Best Tips to Use Steel Pipe Flanges

A pipe flange is a mechanical device that serves the purpose of joining the pipes together. It can be in the form of a welding neck where it is welded to a pipe or other butt-weld fittings.

The threaded flange or flange collar is screwed to the flange with a companion pipe. Other methods include using a lap joint to make connections using a stub end, as well as the common slip-on and socket weld connections.



Here are five tips for using the steel pipe flange for the first time:

Slip-on flanges for low-pressure services

The preference of slip-on flanges is mainly by the users who prefer flanges that are easy to use, have less installation time, and have low cost.

In addition, they are helpful for non-critical low-pressure services like firewater, cooling water, and other non-challenging pipework owing to their strength being approximately 1/3 lower than that of a weld neck flange, depending on the assembly. The pipe gets welded to the flange hub and bore.

If you want to check on the integrity of the slip-on connection, a magnetic particle, a simple visual test, or even a PT test are the approaches you can follow. You can use the slip-on flanges, which come in a variety of sizes greater than NPS ½ (DN 15).

Socket weld flanges in high-pressure pipe works

If you do high-pressure pipework below 2 inches (DN50), a socket weld flange is preferable when space is constrained. It would help if you filleted weld the pipe to the socket weld flange hub.

A good welding flange experience is crucial to make the connection, since a radiographic examination on the fillet weld is not easy to execute.

If, however, the connection is visual and critical, examination alone will not be enough if it carries out the magnetic failure or penetrates particle tests to check the connection strength.

Lap joint flange in high-cost material pipelines

The working of lap joint connections is good for pipelines that are in high-cost materials such as stainless steel and nickel alloys. It dramatically reduces the total cost of all flanged connections, which is required. The stub end, which has been welded to the pipe, and the backing or lapped flanges are used to make a lap joint connection.

You may, for instance, use the stainless steel stub end combined with a carbon steel lap joint flange for a good welded connection at lower costs. This is becoming an increasingly common alternative as the volatility of steel prices becomes an issue.

Connecting weld neck flanges to the butt weld for good performance

There is a tapered hub on the weld-neck flanges. It comes with an end that's finished as a butt weld and can be connected to butt weld pipe and fittings.

You can examine the weld's quality with ultrasound radiography or visually do it.

The welded connection of weld neck flange or pipe flange features good fatigue as well as mechanical stress performance.

Skilled professionals execute the pipe flange joint process

Trained personnel must be the ones to execute flange joint seals. It helps to prevent dangerous leaks from happening in the pipeline.

With the first time use of steel pipes, a properly trained engineer must be the one to execute flange ring joint connections and reference the correct bolt torque data.

Conclusion

Steel pipe flanges are often the best solutions to your multi-stage pipe assemblies, but the material grade is also of concern.

Stainless steel is a corrosion-resistant, durable, strong metal, making it an excellent choice for flange fittings in the gas and oil industry when carbon steel will not suffice.

If you want more information on steel pipe flanges, contact Texas Flange.